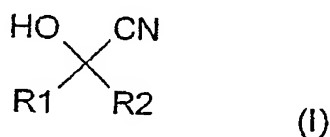


## Patent claims:

1. A method for producing chiral  $\alpha$ -hydroxycarboxylic acids, which comprises converting (R)- or (S)-  
5 cyanohydrins by enzymatic hydrolysis in the presence of *Rhodococcus erythropolis* NCIMB 11540 into the conjugate (R)- or (S)- $\alpha$ -hydroxycarboxylic acids.
- 10 2. The method as claimed in claim 1, characterized in that (R)- or (S)-cyanohydrins are used as starting materials which are obtained by enzymatic or chemically catalyzed addition of a cyanide group to the corresponding aliphatic, aromatic or  
15 heteroaromatic aldehydes or ketones.
3. The method as claimed in claim 1, characterized in that (R)- or (S)-cyanohydrins of the formula



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where R1 and R2 independently of one another are H, a C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-alkenyl radical which is optionally monosubstituted or polysubstituted by  
25 substituents inert under the reaction conditions, or a phenyl radical which is optionally monosubstituted or polysubstituted by substituents inert under the reaction conditions, with the proviso that R1 and R2 are not both H, are used.

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4. The method as claimed in claim 1, characterized in that use is made of the microorganism *Rhodococcus erythropolis* NCIMB 11540 in the form of ground  
cells, crude or purified enzymes, recombinant  
35 enzymes, immobilized cells or enzymes, lyophilized

cells, or "resting cells".

5. The method as claimed in claim 1, characterized in that the microorganism *Rhodococcus erythropolis* NCIMB 11540 is suspended in an aqueous medium and the resultant suspension is admixed with the corresponding chiral cyanohydrin in the presence of a solubilizer as cosolvent.
6. The method as claimed in claim 5, characterized in that, as solubilizer, use is made of organic solvents, surfactants, or phase-transfer catalysts.
7. The method as claimed in claim 6, characterized in that, as organic solvent, use is made of DMSO, DMF, C<sub>1</sub>-C<sub>6</sub>-alcohols, TMBE or mixtures thereof.
8. The method as claimed in claim 5, characterized in that the cosolvent fraction is between 0.5 and 20% by volume, based on the total volume of the reaction solution.
9. The method as claimed in claim 1, characterized in that the pH of the reaction mixture is between 4.5 and 11.
10. The method as claimed in claim 1, characterized in that the hydrolysis is carried out at a temperature between 10 and 60°C.
11. The method as claimed in claim 4, characterized in that, as recombinant enzyme, use is made of an enzyme obtained by expression of the pMS470 plasmid system in a suitable host cell.